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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZIMMER, ANTHONY J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/532,982	NAKAMURA ET AL.	
	Examiner	Art Unit	
	ANTHONY J. ZIMMER	4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *4,5,8,9,11,15,16 and 19-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3, 6-7, 10, 12-14, and 17-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/9/2007, 6/3/2005, 4/28/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status

1. Claims 1-28 are pending.

Election/Restrictions

2. Applicant's election of Invention I in the reply filed on 1/04/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Applicant's election of Species 1 in the reply filed on 1/04/2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

4. Accordingly claims 4-5, 8-9, 11, 15-16, and 19-28 are withdrawn from further consideration.

Priority

5. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

6. The information disclosure statements (IDSs) submitted on 4/28/2005 and 6/3/2005 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

7. The information disclosure statement filed 08/08/2007 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Welch et al. (US4720473, hereinafter Welch).

In regard to claim 1, Welch teaches a process of separation and isolation of shaped catalyst particles. See column 1, lines 10-12. In particular Welch teaches removing spent catalysts (solid catalyst components deteriorated in a reaction) from a

fixed bed reactor and regenerating the spent catalyst. See column 1, lines 34-38, 42-43; or Figure 3, Elements 14, 30, and 36; or column 5, lines 39-43 and column 7, lines 33-37.

In regard to claim 6, after removing said spent catalyst from the reactor as in claim 1, Welch teaches separating out smaller particles from larger particles (in other words separating catalyst components that have a plurality of different shapes) before regeneration. See Welch Figure 3, Elements 14, 30, and 36; column 5, lines 39-43; and column 7 lines 1-5 and 33-37; and Figure 1.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Welch.

In regard to claims 7, as recited above in the rejection of claim 6 above, Welch teaches separating out smaller particles. As a method of doing this Welch discloses (as prior art) separating out the smaller particles (which are described as light pellets) that have a (minor) diameter less than the narrow opening (the smaller "a" side) of the rectangular screen from the larger catalyst components which have a (minor) diameter greater than the narrow opening of the rectangular screen (and thus a minor axis diameter different than the inert particles). See Figure 1 and column 4, lines 13-26.

Though Welch does not particularly teach that the longer dimension of the rectangular holes in the sieve are larger than the major axis of the smaller particles, it would have been obvious to one of ordinary skill in the art to size the holes of the screen in Welch so that the larger dimension of the rectangular screen is larger than the major axis diameter of the smaller particles as the principle of separation based on size exclusion is well known and since purpose of the screen in Welch is to let the smaller particles pass through, one of ordinary skill in the art would have found it obvious to size the rectangular screen to allow the small particles to fit by selecting a rectangular screen wherein the rectangular holes in the screen have a larger dimension (the "b" dimension) that is larger than the major axis of the smaller cylindrical particle. It appears in Figure 1 that the smaller particles (A) are shorter in length than the larger dimension of the rectangular screen. See Figure 1. In general, it would have been obvious to one of ordinary skill in the art to resize the holes in a screen in order to affect an effective separation of two differently sized/shaped particles, as separation based on size exclusion is a well known scientific concept in the art.

13. Claims 2-3, 10, 12-14, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Welch as applied to claims 1, 6, or 7 above, and further in view of Nagai et al. (US5062080, hereinafter Nagai).

In regard to claims 2, 12, and 13, after removing said spent catalyst from the reactor as in claim 1, Welch teaches separating out smaller particles from larger particles before regeneration (in other words separating catalyst components having a plurality of different shapes before regeneration). See Welch Figure 3, Elements 14, 30, and 36; and the method of separation in Figure 1. Welch does not teach separating out a catalyst component substantially inert to the reaction. However, it would have been obvious to one of ordinary skill in the art to modify Welch with Nagai. Nagai teaches a process of subjecting propylene, isobutylene, or tertiary butanol to vapor phase catalytic oxidation to produce an unsaturated aldehyde with a catalyst comprising molybdenum, bismuth, and iron. See abstract of Nagai. In particular Nagai teaches adding an inert component to said catalyst. See Nagai claim 1. Regeneration processes performed outside of the reactor are well known in the art, as Nagai discloses as prior art a process of regenerating such a catalyst by saturating a deteriorated catalyst with a solution containing molybdenum and bismuth and then calcining. See column 2, lines 46-56 of Nagai. In utilizing such a regeneration process, one of ordinary skill in the art would have recognized that removing the inert particles before regeneration would be beneficial in order to decrease the cost of regeneration by creating a smaller volume of

the catalyst to regenerate (Welch teaches removing catalyst particles for this reason, see Welch, column 7, lines 62-63).Thus, since Welch was a method known in the art to separate catalyst components one of ordinary skill would have found it obvious to combine the two references by substituting the inert particles of Nagai for the smaller particles in Welch and also substituting the Mo, Bi, Fe catalyst particles of Nagai for the larger particles in Welch in order to affect the predictable result of separating the catalyst components before regeneration.

In regard to claims 3 and 14 as recited above in the claim 2 rejection above, Welch teaches separating out smaller particles. As a method of doing this Welch discloses (as prior art) separating out the smaller particles (which are described as light pellets) that have a (minor) diameter less than the narrow opening (the smaller "a" dimension) of the rectangular screen from the larger catalyst components which have a (minor) diameter greater than the narrow opening of the rectangular screen (and thus a minor axis diameter different than the inert particles). See Figure 1 and column 4, lines 13-26.

Though Welch does not particularly teach that the longer dimension of the rectangular holes in the sieve are larger than the major axis of the smaller particles, it would have been obvious to one of ordinary skill in the art to size the holes of the screen in Welch so that the larger dimension of the rectangular screen is larger than the major axis diameter of the inert particles as the principle of separation based on size exclusion is well known and since purpose of the screen in Welch is to let the smaller

particles pass through, one of ordinary skill in the art would have found it obvious to size the rectangular screen to allow the small particles to fit by selecting a rectangular screen wherein the rectangular holes in the screen have a larger dimension (the "b" dimension) that is larger than the major axis of the smaller cylindrical particle. Also, it appears in Figure 1 that the smaller particles (A) are shorter in length than the larger dimension of the rectangular screen. See Figure 1.

In regard to claim 10, Welch does not teach using a solid catalyst comprising molybdenum, bismuth, and iron. However it would have been obvious to one of ordinary skill in the art to modify Welch in view of Nagai as Nagai teaches a process of subjecting propylene, isobutylene, or tertiary butanol to vapor phase catalytic oxidation to produce an unsaturated aldehyde with a catalyst comprising molybdenum, bismuth, and iron. Regeneration processes performed outside of the reactor are well known in the art, as Nagai discloses as prior art a process of regenerating such a catalyst by saturating a deteriorated catalyst with a solution containing molybdenum and bismuth and then calcining. See column 2, lines 46-56 of Nagai. Thus, it would have been obvious to one of ordinary skill in the art to combine Welch and Nagai by substituting the molybdenum, bismuth, and iron catalyst into the process of Welch as discussed in the rejection of claim 1 above (i.e. removing the catalyst from the reactor and regenerating it) in order to affect the predictable result of regenerating said catalyst as both references relate to regenerating catalysts.

In regard to claim 17, Welch does not teach using a solid catalyst comprising molybdenum, bismuth, and iron. However it would have been obvious to one of ordinary skill in the art to modify Welch in view of Nagai as Nagai teaches a process of subjecting propylene, isobutylene, or tertiary butanol to vapor phase catalytic oxidation to produce an unsaturated aldehyde with a catalyst comprising molybdenum, bismuth, and iron. Regeneration processes performed outside of the reactor are well known in the art, as Nagai discloses as prior art a process of regenerating such a catalyst by saturating a deteriorated catalyst with a solution containing molybdenum and bismuth and then calcining. See column 2, lines 46-56 of Nagai. Thus, it would have been obvious to one of ordinary skill in the art to combine Welch and Nagai by substituting the molybdenum, bismuth, and iron catalyst into the process of Welch as discussed in the rejection of claim 6 above (i.e. removing the catalyst from the reactor, separating out smaller particles, and regenerating it) in order to affect the predictable result of reducing the cost of regenerating said catalyst (as removing the smaller particles decreases the volume of catalyst regenerated) as both references relate to regenerating catalysts.

In regard to claim 18 Welch does not teach using a solid catalyst comprising molybdenum, bismuth, and iron. However it would have been obvious to one of ordinary skill in the art to modify Welch in view of Nagai as Nagai teaches a process of subjecting propylene, isobutylene, or tertiary butanol to vapor phase catalytic oxidation to produce an unsaturated aldehyde with a catalyst comprising molybdenum, bismuth, and iron. Regeneration processes performed outside of the reactor are well known in

the art, as Nagai discloses as prior art a process of regenerating such a catalyst by saturating a deteriorated catalyst with a solution containing molybdenum and bismuth and then calcining. See column 2, lines 46-56 of Nagai. Thus, it would have been obvious to one of ordinary skill in the art to combine Welch and Nagai by substituting the molybdenum, bismuth, and iron catalyst into the process of Welch as discussed in the rejection of claim 6 above (i.e. removing the catalyst from the reactor, separating out smaller particles, and regenerating it) in order to affect the predictable result of reducing the cost of regenerating said catalyst (as removing the smaller particles decreases the volume of catalyst regenerated) as both references relate to regenerating catalysts.

Conclusion

14. In sum, all claims are rejected, and no claim is allowed.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. ZIMMER whose telephone number is (571)270-3591. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on 571-272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ajz

/Vickie Kim/
Supervisory Patent Examiner, Art Unit 4116